
**REMEDIAL ACTION REPORT
WILLOW BROOK AND WILLOW BROOK POND
UNITED TECHNOLOGIES CORPORATION
PRATT & WHITNEY
EAST HARTFORD, CT**

October 28, 2002

**Prepared for
UNITED TECHNOLOGIES CORPORATION
One Financial Plaza
Hartford, CT 06101**

**Prepared by
LOUREIRO ENGINEERING ASSOCIATES, INC.
100 Northwest Drive
Plainville, Connecticut**

Comm. No. 88UT103.001

EXECUTIVE SUMMARY
WILLOW BROOK AND WILLOW BROOK POND
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United Technologies Corporation (UTC)/Pratt & Whitney Division retained Loureiro Engineering Associates, Inc. (LEA), to design and perform the remediation of polychlorinated biphenyl (PCB) contaminated soil and sediment within and immediately surrounding Willow Brook and Willow Brook Pond at the UTC/Pratt & Whitney manufacturing facility in East Hartford, Connecticut. The project was undertaken to satisfy the requirements of Consent Order SRD-130. The following report has been prepared in accordance with the requirements of paragraph B.1.e of Consent Order SRD-130 and presents data supporting the attainment of the remedial action objectives for the project. The remediation activities were initiated on July 2, 2001 and were completed on August 31, 2002.

In addition to satisfying the requirements of SRD-130, the project was also implemented as a final remedy under the Resource Conservation and Recovery Act (RCRA) Corrective Action and Toxic Substance Control Act (TSCA) programs. On January 19, 2001, the EPA RCRA Corrective Action Program issued a determination that the remediation of contaminated sediments within Willow Brook and Willow Brook Pond was necessary. In order to obtain a decision that the remediation would be considered a final remedy for this area, EPA RCRA Corrective Action and TSCA staff were involved in the review of the RAWP and were included in all project related correspondence with the various regulatory agencies.

The overall remedial action objective was to physically remove from the site, via excavation and off-site disposal, all soil and sediment containing total PCB concentrations in excess of 25 mg/kg and then install a geotextile, soil and rock cap (engineered control) over the entirety of Willow Brook Pond and the open channel of Willow Brook from Willow Brook Pond to Main Street. Three areas within the Site were assigned additional remedial objectives. For the wetland and the southern portion of the Lower Willow Brook Pond, the additional remedial action objective was to physically remove all soil and sediment exhibiting contaminants at concentrations greater than the Residential Direct Exposure Criteria (RDEC) for PCBs. For the footprint of the Process Water Facility, inclusive of the small embayment west of the Process Water Facility, the additional remedial action objective was to meet the RDEC for PCBs for soils within 4-feet of the final grade, the Industrial/Commercial Direct Exposure Criteria (IDEC) for PCBs for soils located in inaccessible locations and the GB Pollutant Mobility Criteria (GB PMC) for soils above the seasonal high water table. All remedial action objectives were met during the course of the project.

The remediation included the demolition and removal of the Process Water Facility, a substation (Substation 54), and a former oil/water separator that was located between Upper and Lower Willow Brook Pond.

The remedial action objectives also included the implementation of two institutional controls to ensure the long-term protectiveness of the remedy. The institutional controls consist of 1) an Environmental Land Use Restriction (ELUR) to ensure the affected area will not be used for residential purposes and to prohibit excavation and 2) a fence around the entire project area to preclude access to Willow Brook and Willow Brook Pond. At the time of this report, the

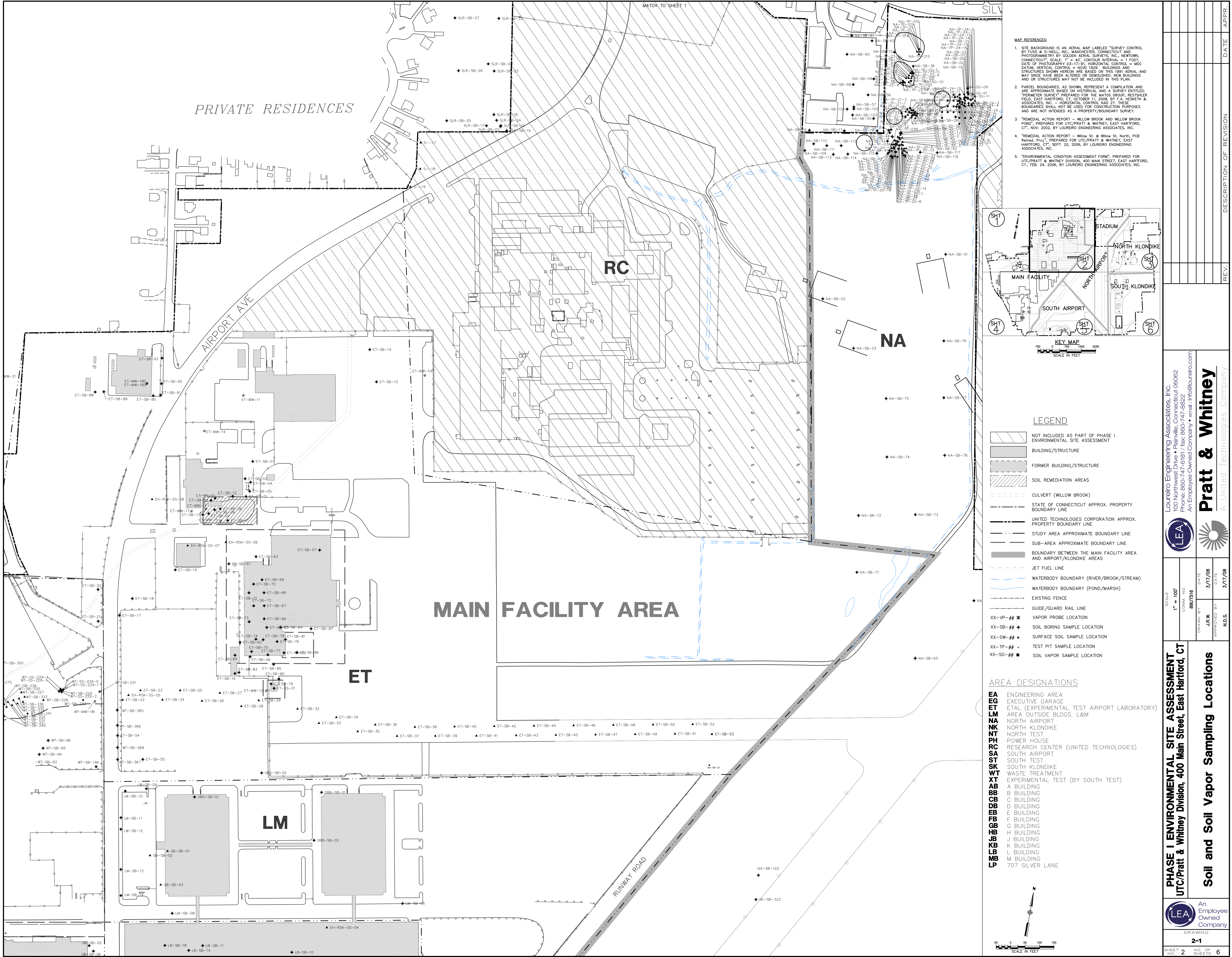
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perimeter fence is in place and a draft ELUR has been submitted to the Commissioner of DEP for approval.

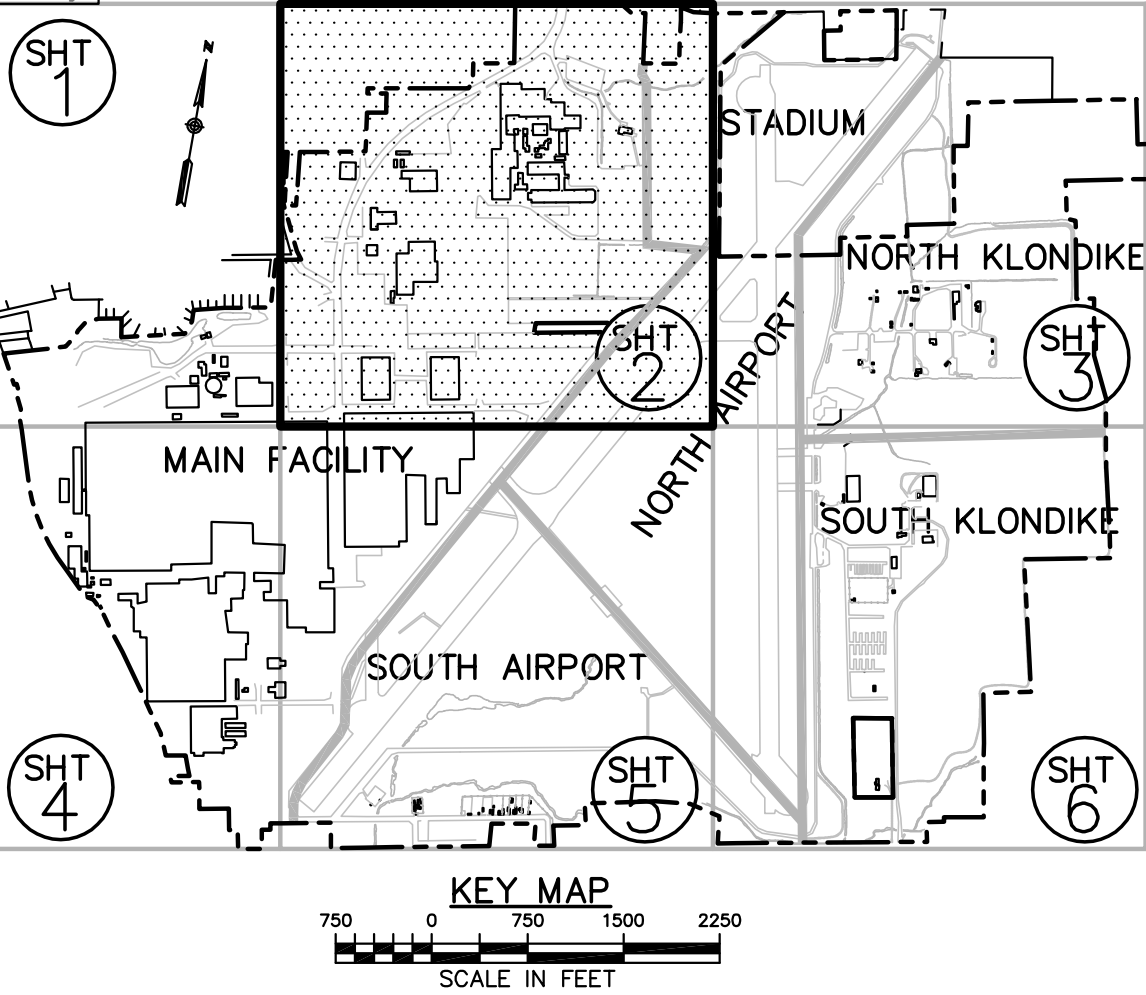
Initially, it was anticipated that the total volume of soil and sediment to be excavated and disposed of off the Site would be approximately 12,500 cubic yards, which was estimated to be roughly equivalent to 21,250 tons (estimated at 1.7 tons per cubic yard). It was also estimated that the excavation and off-site disposal activities would be completed in the winter of 2001, with final restoration and establishment of vegetation to be performed through spring of 2002. Upon completion of the remediation activities, 66,706 tons (60,513,936 kilograms), or approximately 55,500 cubic yards of contaminated soil and sediment were excavated and disposed of off the site. The additional volume of contaminated soil resulted from (1) greater than anticipated lateral and vertical extent of contamination in planned remediation areas and (2) a decision by UTC/Pratt & Whitney Division to complete excavation beyond the limits required in Consent Order SRD-130 in select areas of the site where, due to physical constraints, the performance of future remediation would not be cost-effective or prudent.

Following the completion of excavation and demolition activities, the entire site was restored. The site restoration involved the installation of three types of engineered controls over the remaining soil and sediments. The engineered controls were designed to accommodate the anticipated stream flow velocities and considered the ultimate use of the areas. The Wetland north of Willow Brook was remediated to meet the RDEC. As such, there is no need for an engineered control within this area. The restoration activities performed were focused on restoring this area to a marsh with habitat value.

The permits and approvals issued by the Army Corps of Engineers, the DEP Inland Water Resources Division, and the DEP Permitting, Enforcement & Remediation Division contain specific requirements for various activities that extend beyond the construction period. The mandatory post-remediation activities for this project include monitoring and maintenance of the engineered controls, monitoring and maintenance of the wetland restoration, groundwater monitoring, and recording of the necessary land use restrictions and demonstrating financial assurance for the engineered control maintenance and monitoring activities. These post-construction activities are underway. Completed activities include the first round of post-remediation groundwater monitoring, the first post-remediation engineered control inspection, the first post-construction wetland mitigation monitoring event, the demonstration of financial assurance, and the drafting of an ELUR for the approval of the Commissioner of the DEP.



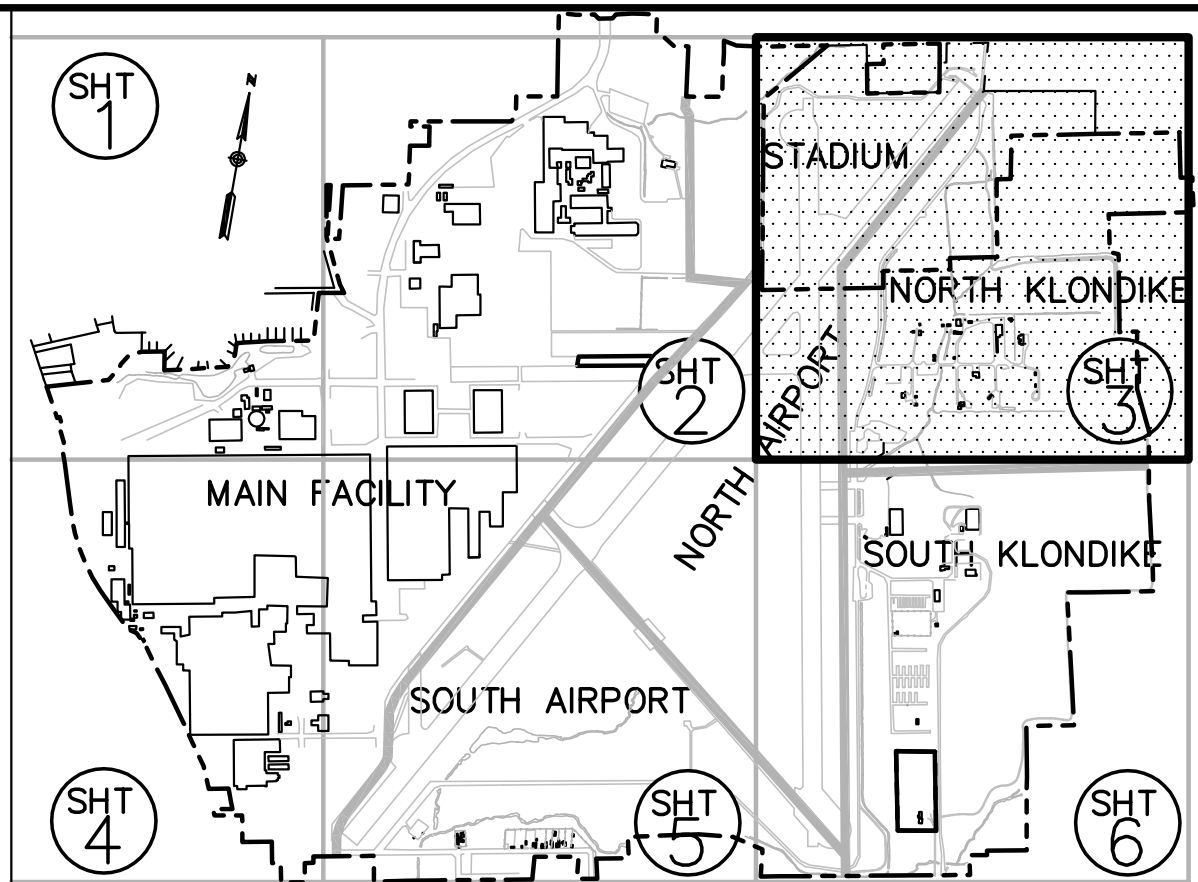
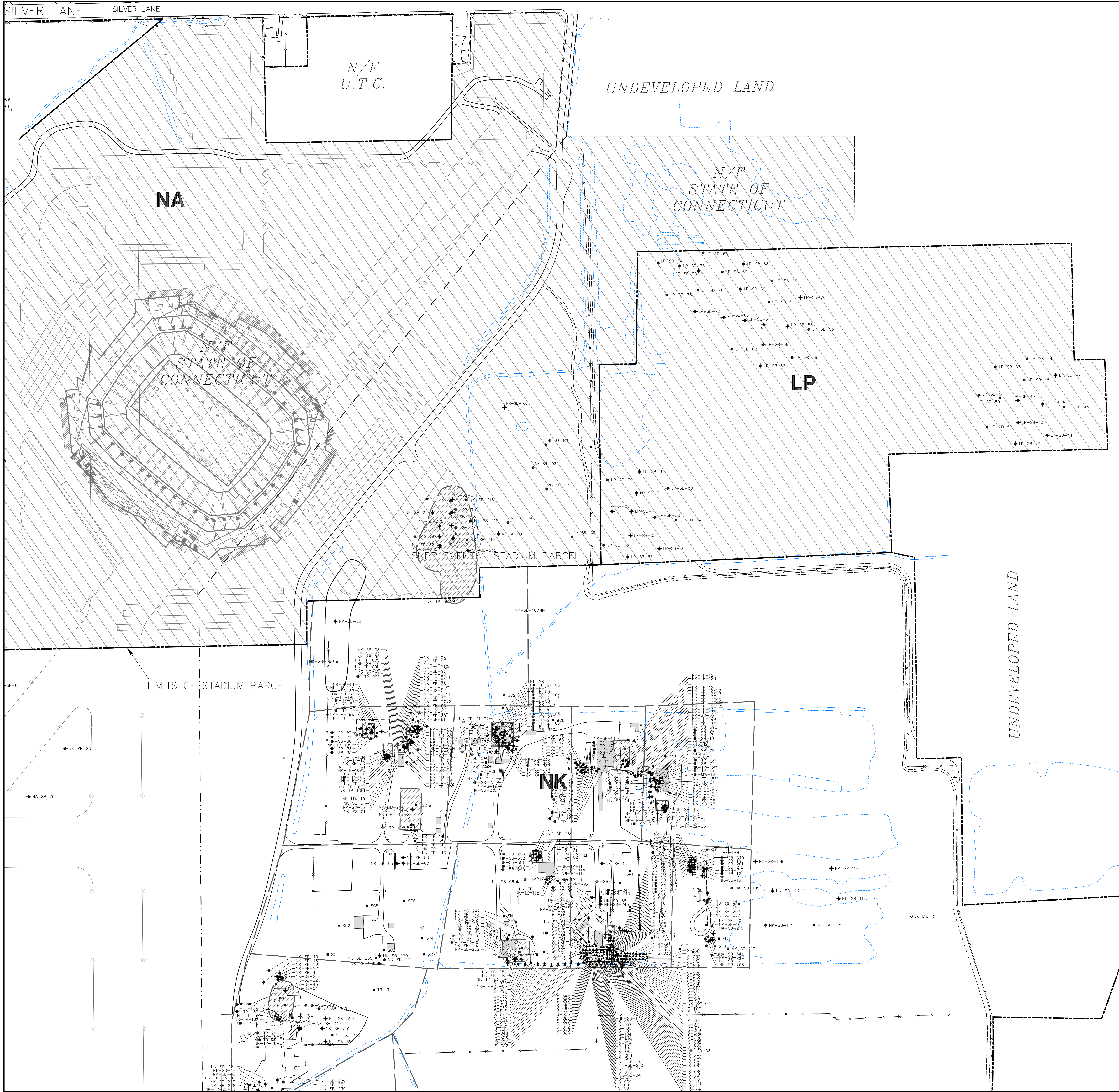
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Pratt & Whitney A United Technologies Company		DATE: 3/17/08 NO. OF SHEETS: 6	
PHASE I ENVIRONMENTAL SITE ASSESSMENT UTC/Pratt & Whitney Division, 400 Main Street, East Hartford, CT		Soil and Soil Vapor Sampling Locations	
DRAWING NO. 2		SHEET NO. 2	

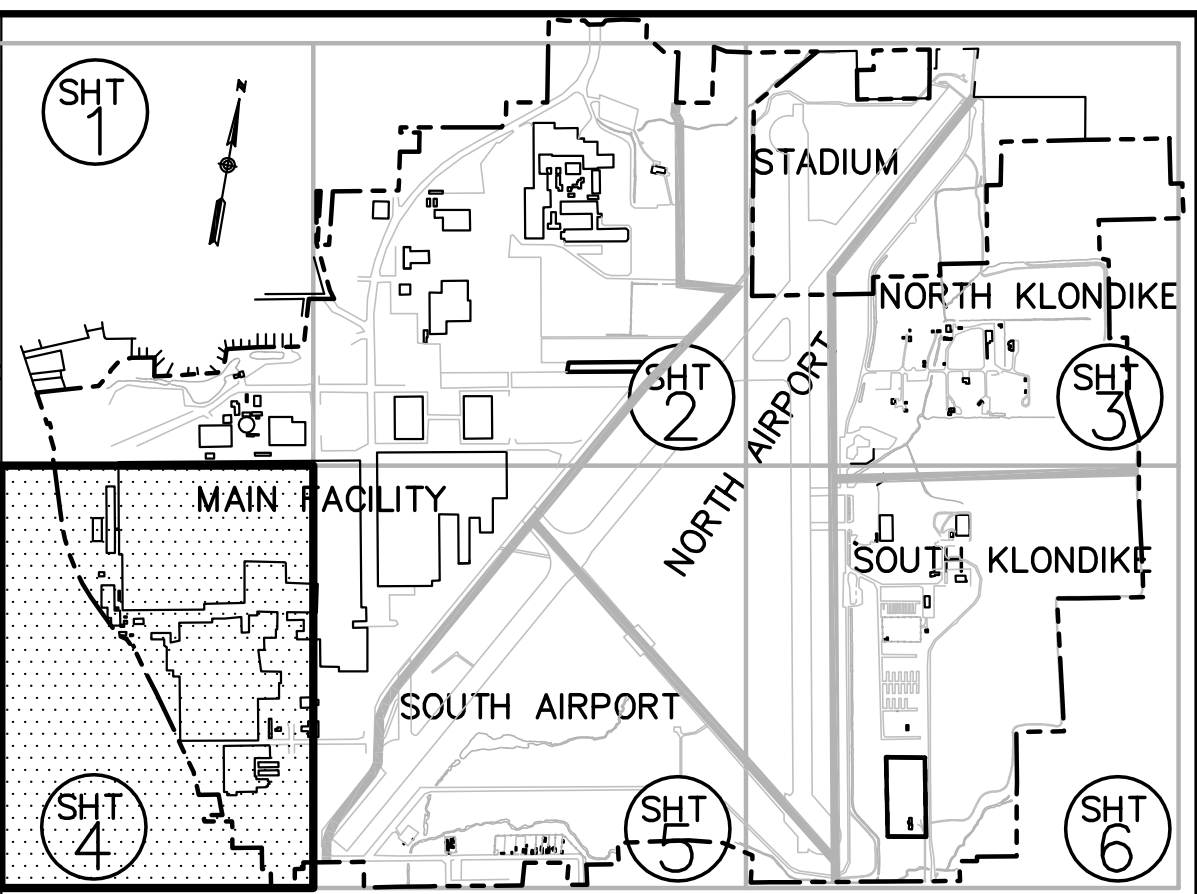


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SCALE 1" = 100'		DATE 3/17/08	
DRAWN BY JRS		DATE 3/17/08	
APPROVED BY NDS		DATE 3/17/08	
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Soil and Soil Vapor Sampling Locations			
SHEET NO. 3		NO. OF SHEETS 6	



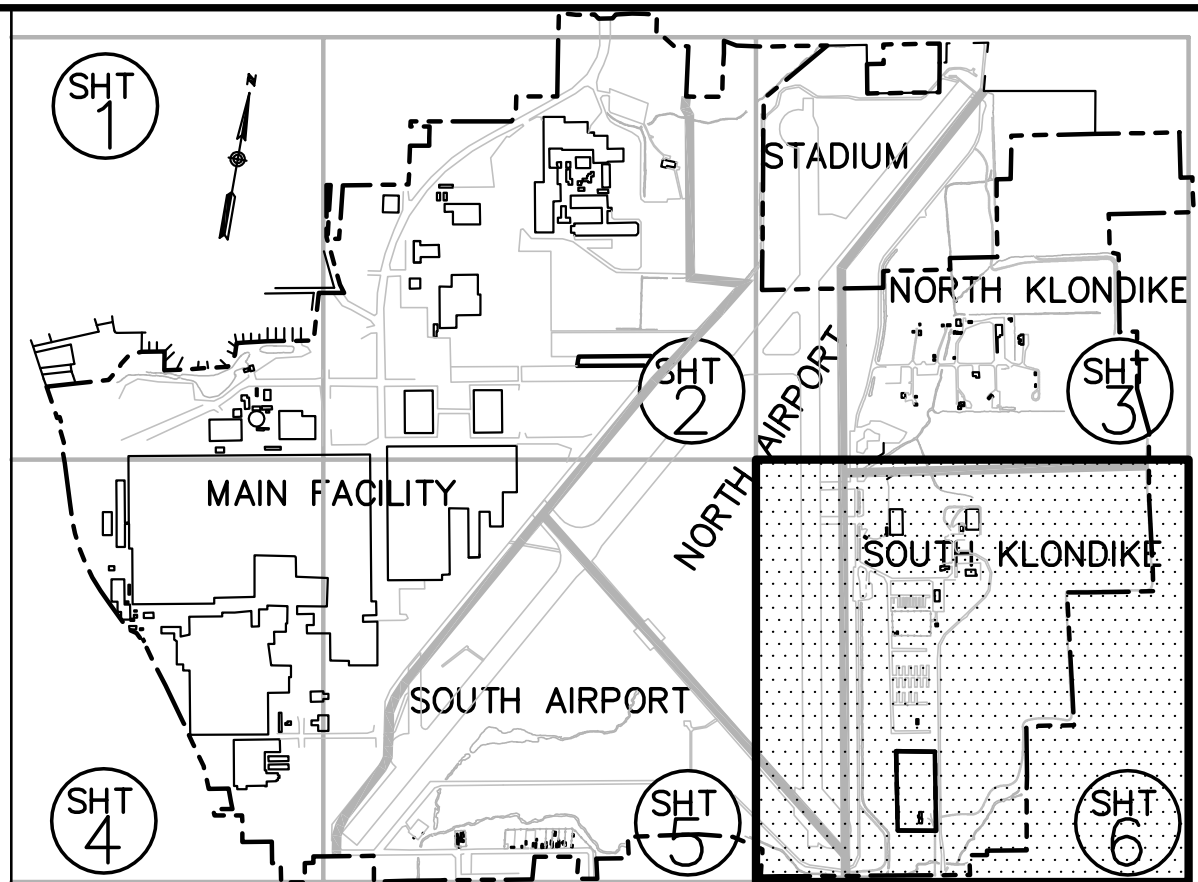
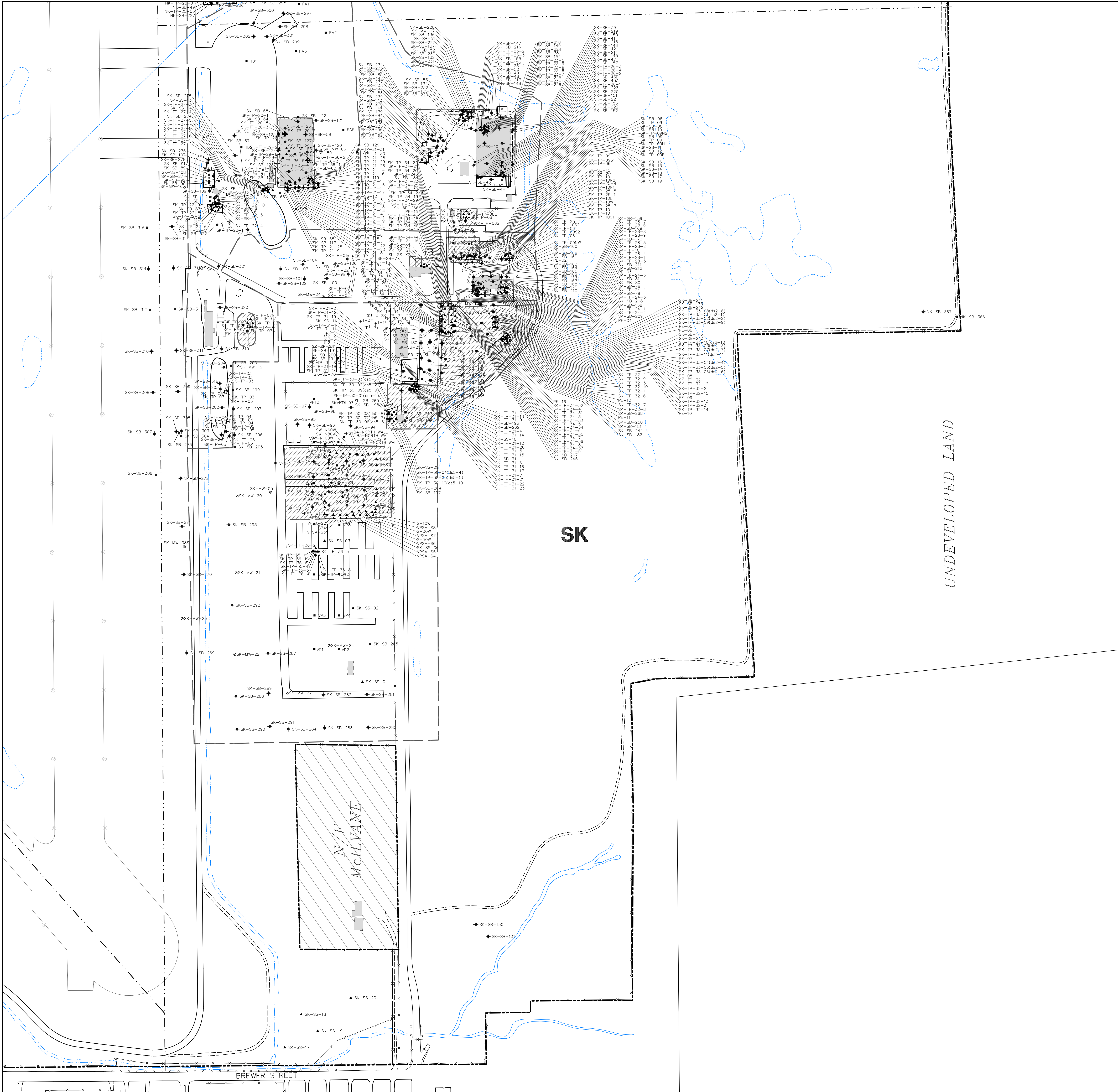
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SCALE 1" = 100'	DATE 3/17/08	DATE 3/17/08	DATE 3/17/08
COMD. NO. 88UTS16	DRAWN BY J.R.W.	APPROVED BY N.D.S.	DATE 3/17/08
SHEET NO. 4		NO. OF SHEETS 6	



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UTC/Pratt & Whitney Division, 400 Main Street, East Hartford, CT

Soil and Soil Vapor Sampling Locations

Pratt & Whitney
A United Technologies Company

LEA
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2-1

SHEET NO. 6 NO. OF SHEETS 6

AREA DESIGNATIONS

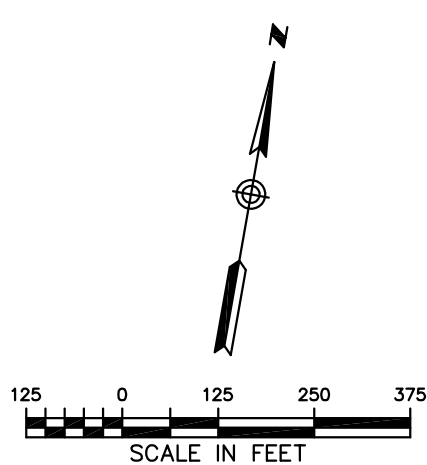
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- NOT INCLUDED AS PART OF PHASE I ENVIRONMENTAL SITE ASSESSMENT
 - BUILDING/STRUCTURE
 - FORMER BUILDING/STRUCTURE
 - SOIL REMEDIATION AREAS
 - CULVERT (WILLOW BROOK)
 - STATE OF CONNECTICUT APPROX. PROPERTY BOUNDARY LINE
 - UNITED TECHNOLOGIES CORPORATION APPROX. PROPERTY BOUNDARY LINE
 - STUDY AREA APPROXIMATE BOUNDARY LINE
 - SUB-AREA APPROXIMATE BOUNDARY LINE
 - BOUNDARY BETWEEN THE MAIN FACILITY AREA AND AIRPORT/KLONDIKE AREAS
 - JET FUEL LINE
 - WATERBODY BOUNDARY (RIVER/BROOK/STREAM)
 - WATERBODY BOUNDARY (POND/MARSH)
 - EXISTING FENCE
 - GUIDE/GUARD RAIL LINE
 - MONITORING WELL SAMPLE LOCATION
 - PIEZOMETER SAMPLE LOCATION
 - PRODUCTION WELL SAMPLE LOCATION
 - SCREENPOINT SAMPLE LOCATION
 - GROUNDWATER CONTOUR
 - GROUNDWATER CONTOUR (INFERRED)
 - GROUNDWATER FLOW DIRECTION

THE GROUNDWATER CONTOURS SHOWN WITHIN THE MAIN FACILITY AREA ARE BASED ON MEASUREMENTS OBTAINED ON APRIL 17, 2001.



PHASE I ENVIRONMENTAL SITE ASSESSMENT UTC/Pratt & Whitney Division, 400 Main Street, East Hartford, CT		SCALE 1" = 250' CONAL. NO. 88UTS16		DATE 3/17/08		DATE 3/17/08	
Top of Clay Layer Groundwater Contour Map		DRAWN BY JSW		DATE 3/17/08		DATE 3/17/08	
SHEET NO. 1		NO. OF SHEETS 1		REV.		DESCRIPTION OF REVISION	
DATE		DATE		DATE		DATE	
APPR.		APPR.		APPR.		APPR.	

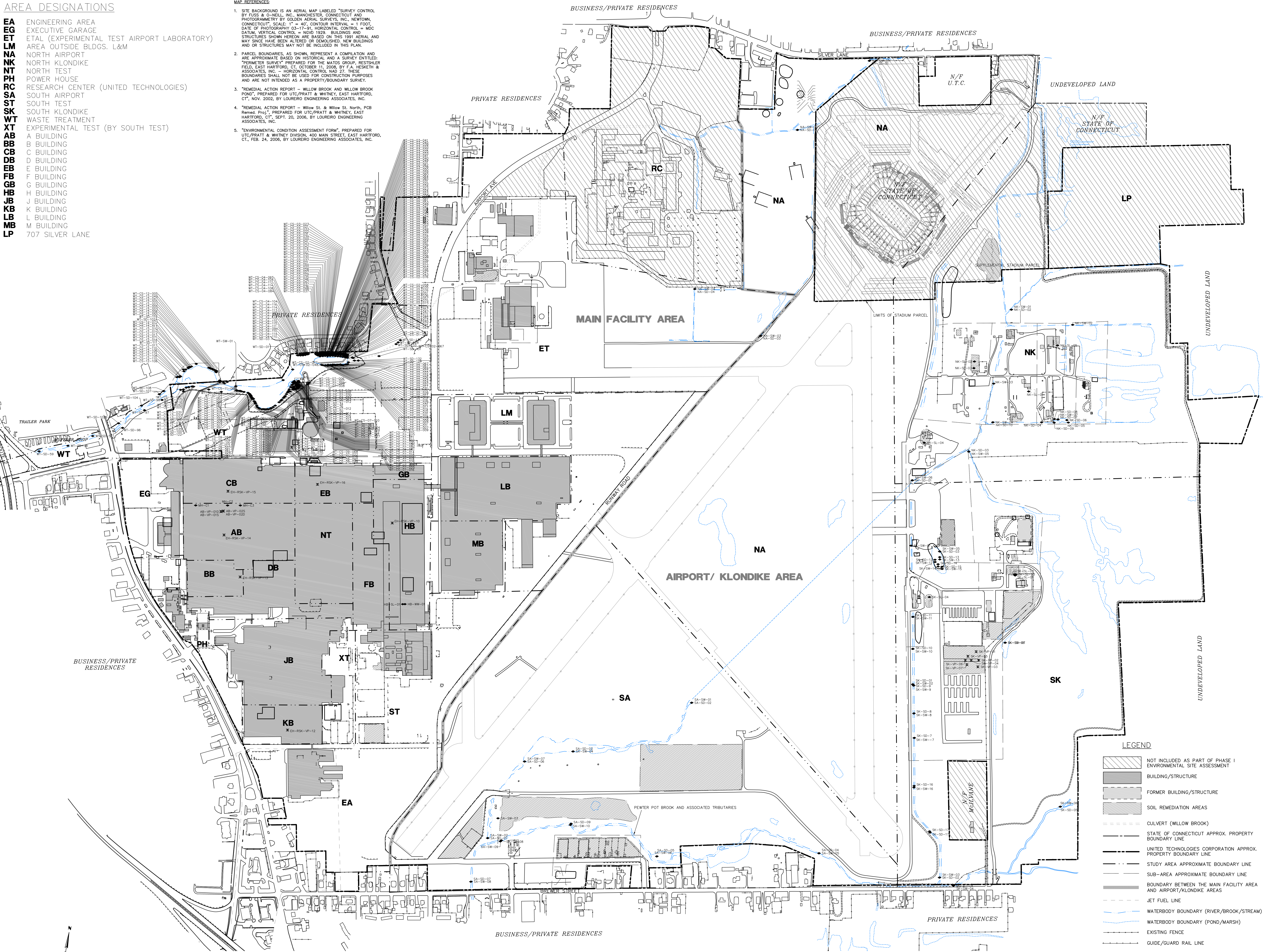
Pratt & Whitney
 A United Technologies Company
 Loureiro Engineering Associates, Inc.
 100 Northwest Drive • Plainville, Connecticut 06062
 Phone: 860-747-6161 / Fax: 860-747-8822
 An Employee Owned Company • email: info@loureiro.com

AREA DESIGNATIONS

- EA ENGINEERING AREA
EG EXECUTIVE GARAGE
ET ETAL (EXPERIMENTAL TEST AIRPORT LABORATORY)
LM AREA OUTSIDE BLDGS. L&M
NA NORTH AIRPORT
NT NORTH TEST
PH POWER HOUSE
RC RESEARCH CENTER (UNITED TECHNOLOGIES)
SA SOUTH AIRPORT
ST SOUTH TEST
SK SOUTH KLONDIKE
WT WASTE TREATMENT
XT EXPERIMENTAL TEST (BY SOUTH TEST)
AB BUILDING
BB BUILDING
CB BUILDING
DB BUILDING
EB BUILDING
FB BUILDING
GB BUILDING
HB BUILDING
JB BUILDING
KB BUILDING
LB BUILDING
MB BUILDING
LP 707 SILVER LANE

MAP REFERENCES:

1. SITE BACKGROUND IS AN AERIAL MAP LABELED "SURVEY CONTROL BY RUSS & O'NEILL, INC., MANCHESTER, CONNECTICUT AND PHOTOGRAMMETRY BY GOLDEN AERIAL SURVEYS, INC., NEWTOWN, CONNECTICUT, SCALE: 1" = 40', CONTOUR INTERVAL = 1 FOOT, DATE OF PHOTOGRAPHY 03-17-91, HORIZONTAL CONTROL = MDC DATUM, VERTICAL CONTROL = NAVD 1983. BUILDINGS AND STRUCTURES SHOWN HEREON ARE BASED ON THIS 1991 AERIAL AND MAY SINCE HAVE BEEN ALTERED OR DEMOLISHED. NEW BUILDINGS AND OR STRUCTURES MAY NOT BE INCLUDED IN THIS PLAN.
2. PARCEL BOUNDARIES, AS SHOWN, REPRESENT A COMPILED AND ARE APPROXIMATE BASED ON HISTORICAL AND A SURVEY ENTITLED: "PERMETER SURVEY" PREPARED FOR THE MATOS GROUP, RESTRIKLER FIELD, EAST HARTFORD, CT, OCTOBER 11, 2008, BY F.A. HESKETH & ASSOCIATES, INC. - HORIZONTAL CONTROL: NAD 27. THESE BOUNDARIES SHALL NOT BE USED FOR CONSTRUCTION PURPOSES AND ARE NOT INTENDED AS A PROPERTY/BOUNDARY SURVEY.
3. "REMEDIATION ACTION REPORT - WILLOW BROOK AND WILLOW BROOK POND", PREPARED FOR UTC/PRATT & WHITNEY, EAST HARTFORD, CT, NOV. 2002, BY LOUREIRO ENGINEERING ASSOCIATES, INC.
4. "REMEDIATION ACTION REPORT - Willow St. & Willow St. North, PCB Remed. Proj.", PREPARED FOR UTC/PRATT & WHITNEY, EAST HARTFORD, CT, SEPT. 20, 2006, BY LOUREIRO ENGINEERING ASSOCIATES, INC.
5. "ENVIRONMENTAL CONDITION ASSESSMENT FORM", PREPARED FOR UTC/PRATT & WHITNEY DIVISION, 400 MAIN STREET, EAST HARTFORD, CT, FEB. 24, 2006, BY LOUREIRO ENGINEERING ASSOCIATES, INC.



LEGEND

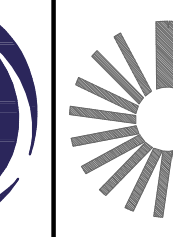
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- WATERBODY BOUNDARY (POND/MARSH)
- EXISTING FENCE
- GUIDE/GUARD RAIL LINE
- XX-SW-## SURFACE WATER SAMPLE LOCATION
- XX-SD-## SEDIMENT SAMPLE LOCATION

PHASE I ENVIRONMENTAL SITE ASSESSMENT
UTC/Pratt & Whitney Division, 400 Main Street, East Hartford, CT

Surface Water and
Sediment Sampling Locations



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1" = 250'

COM. NO.
880/TS16

DRAWN BY
J.R.W.

DATE
3/17/08



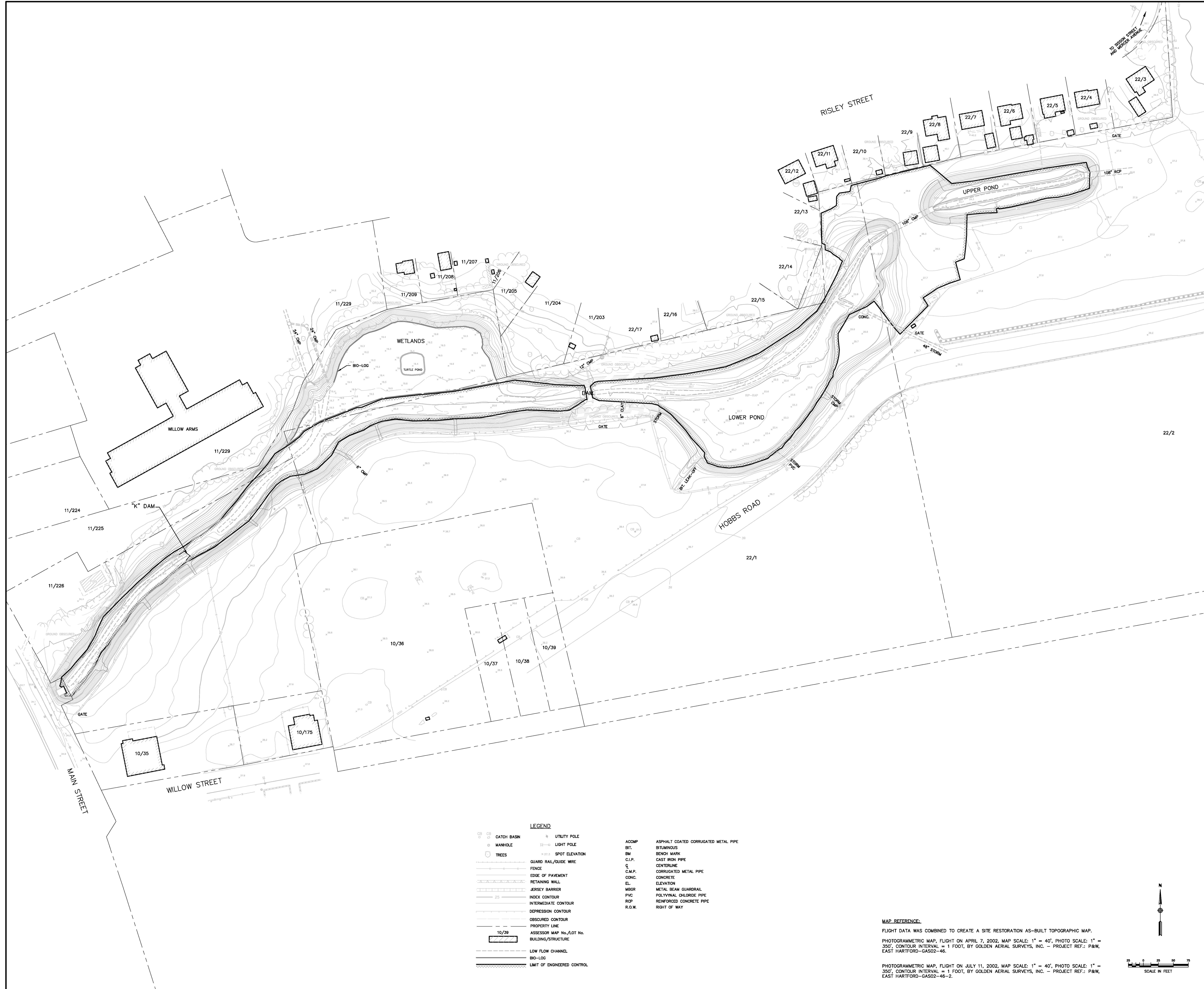
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DRAWING
2-4

SHEET NO. 1 NO. OF SHEETS 1

APPR. DATE

REV. DESCRIPTION OF REVISION

[illegible]